

The Digital Hospital: Transforming Care Delivery with e-Health Records*

Chris Sapardanis

It's the beginning of staff nurse Mary Hill's shift at Fletcher Allen Health Care in Vermont. She confers with Tamara Gomez, RN, who is ending her shift. Together, they look at a computer monitor at a patient's bedside. Mary is getting a complete view of the patient's care history. It's all there – recent medications, vital signs, allergies, test results and more – on one screen.

The view is courtesy of an electronic health record system called Patient Record and Information Systems Management (PRISM). The system, which uses application software by Epic, is putting this academic medical centre on the map. By the end of 2010, Fletcher Allen Health Care will be in the top 3% to 4% of healthcare organizations in the United States (US) that have a fully integrated electronic health record (EHR) system.

As part of a clinical transformation project led by CSC, PRISM improves patient care, confidentiality, provider communications and security, among other benefits, while putting Fletcher Allen on the road to qualify for federal funding within President Obama's healthcare reform plan.

Under the *American Recovery and Reinvestment Act of 2009*, hospitals started to qualify for payments from Medicare and Medicaid in October 2010 for the successful implementation and use of EHRs. Hospitals that do not meet federal guidelines by 2015 face reductions in Medicare reimbursements.

With PRISM, Fletcher Allen's in-patient operations are positioned to meet the requirements established for receiving incentives based on "meaningful use" of EHRs. Once fully implemented in December 2010, the system will serve all of Fletcher Allen's 45 facilities and clinics, including the approximately 1,100 providers who are credentialed at Fletcher Allen.

"We adopted an electronic health record to improve safety and quality of care for patients," says Sandra Dalton, senior vice president of Patient Care Services and chief nursing officer at Fletcher Allen. "With CSC's healthcare expertise and track record in clinical systems implementation and improvement, we have succeeded in completing the first phase of our project on budget, on schedule and in just 15 months. We hope other hospitals are encouraged by our achievement."

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Client: Fletcher Allen Health Care

Challenge: Improve hospital operations and show meaningful use of electronic health records to qualify for payments from Medicare and Medicaid.

Solution: Implementation of Patient Record and Information Systems Management (PRISM), an electronic health record system.

Results: With PRISM, physician utilization for all orders was 96%, near-miss medication events decreased 60%, daily fall assessments increased 20% and 25% fewer patient charts needed to be pulled.

Moving beyond Paper

PRISM has transformed clinical care delivery at Fletcher Allen from paper-based processes to a fully electronic system. Since going live in June 2009, staff embraced this new system after realizing the benefits.

“Initially, the transition to PRISM was a huge culture change,” says Maureen Tremblay, nurse manager with Shepardson 4, Fletcher Allen’s hematology and oncology unit. “But our staff really worked as a team to learn the new system. It’s a wonderful tool that helps staff pull all the information they need to provide the best possible care, right there at the patient’s bedside.”

Prior to the implementation, most information at Fletcher Allen was written in one of two patient charts. In order to view all of the patient’s information, a nurse would have to locate the charts – one on the door and the other that could be with a physician or another clinician.

PRISM went live initially in Fletcher Allen’s in-patient areas, pharmacy and emergency departments, and a walk-in care centre. CSC continues to offer IT consulting services during the second implementation taking place, which includes ambulatory clinics, Beacon Oncology and MyChart – a feature that allows patients to securely access portions of their electronic health record via the web.

The system’s capabilities most notably include Computerized Provider Order Entry (CPOE), a process where physicians, advanced practice nurses and physicians’ assistants enter orders in the system at the point of care. These orders are signed and transmitted through the network to departments responsible for fulfilling the order, such as pharmacy, laboratory or radiology.

CPOE decreases delays in order completion, reduces errors related to handwriting or transcription, allows order entry at point of care or off-site, and provides error checking for duplicate or incorrect doses or tests. It also simplifies inventory and posting of charges. Other advantages of PRISM include viewable medication and allergy lists, e-prescribing, clinical documentation and higher-quality reporting. Health informa-

tion exchange is also possible, as are electronic submissions to public health agencies and immunization registries.

Transforming a Clinical Program

CSC partnered with Fletcher Allen to complete the clinical transformation side of the EHR project. “We handled all the clinical process workflow for the 15-month implementation period,” says Jerry Howell, CSC’s client partner for Fletcher Allen.

“Usual implementation cycles for this type of project last 18 to 36 months,” Howell says. “But we’re seeing more and more in the industry that our clients want it done faster to meet all the ‘meaningful use’ dates and requirements.”

From a clinical point of view, CSC mapped out how Fletcher Allen used technology, from medication management, work flow, users and future states, to customize PRISM appropriately. We also allocated the right amount of resources to build, test and bring the system to life, as well as provided additional personnel for training support.

Besides the aggressive timeline, organizational change management was a major hurdle. “The biggest challenge health-care organizations find when putting in CPOEs is physician resistance,” Howell says. “This is not their normal way of doing things. Fletcher Allen’s senior leadership recognized that early in the process and participated in every stage of the project. They understood that challenge and did many interventions to prepare their medical team.”

About Fletcher Allen Health Care

Fletcher Allen Health Care serves a dual role as Vermont’s Academic Medical Center, in partnership with the University of Vermont, and as a community hospital. The regional referral centre provides advanced-level care to approximately one million people. It is also a training site for about 400 medical students, 550 nursing and allied health students and 280 residents in training.

“Things are going very well,” says Dennis Woods, MD, Inpatient Rehab at Fletcher Allen. “We are finding more functionality as we get more comfortable with the system. In the long run, these aspects will save time. And already, we are seeing how we can enhance patient care by being able to have everything open at once – charts, orders, vitals, etc.”

Training was also a major challenge because Fletcher Allen decided to take a big-bang approach to going live. Basically, everyone in in-patient care roles needed to start using the system at the same time.

“They made a decision that they wanted everyone to use it from Day 1 and they had the organization prepared to do that,”

Howell adds. “They did a great job, but it was an incredible challenge because you basically have to help everyone at the same moment throughout the entire organization and still take care of patients.”

Fletcher Allen by the Numbers

122 Number of clinical transformation improvements PRISM teams designed during the project

96% Computerized Physician Order Entry utilization for all orders, including medications

60% Decrease in near-miss medication events

20% Increase in daily fall assessments

25% Reduction in number of patient charts needing to be pulled

avert medication errors, an ability to view a complete overview of a patient’s health history and current diagnosis, and better educational opportunities as each pharmacist can pull his or her interventional data and share it.

For example, Fletcher Allen Clinical Pharmacist Wes McMillian, a critical care specialist, uses his own intervention data to develop a curriculum for residents coming through critical care. The data obtained through PRISM offers the opportunity to change behaviours.

Working with the clinical planning group, pharmacy staff is more clearly defining interventions into 37 categories, including dose change, drug change, medication reconciliation, non-formulary to formulary, and renal adjustment review.

“The success of this project proves that EHRs can be implemented quickly and effectively,” says Mark Roman, president of CSC’s Healthcare Group. “The commitment of Fletcher Allen’s senior executive team, including the medical staff leadership, was crucial to its completion. When combined with CSC’s clinical and technical expertise, it enabled Fletcher Allen to rapidly move from a manual process to an electronic system where nearly all medical orders are being entered automatically.” **EH**

Succeeding at a New Model

Fletcher Allen Pharmacy Director Karen McBride, RPh, says pharmacists have found several benefits to working in PRISM, such as improved documentation of pharmacy intervention to

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